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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,834	02/23/2004	Robert Maher	P04461-D10 (11461.00.0188)	2588
23418	7590	07/07/2005	EXAMINER	
VEDDER PRICE KAUFMAN & KAMMHOLZ 222 N. LASALLE STREET CHICAGO, IL 60601			DU, THUAN N	
			ART UNIT	PAPER NUMBER
			2116	

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/784,834

Applicant(s)

MAHER ET AL.

Examiner

Thuan N. Du

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-28, 30, 32-35, 38-44, 46, 48-51, 54-59, 61, 63-66 and 69 is/are rejected.
- 7) ☒ Claim(s) 29, 31, 36, 37, 45, 47, 52, 53, 60, 62, 67 and 68 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 23-69 are maintained for examination.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 23-28, 30, 32-35, 38-44, 46, 48-51, 54-59, 61, 63-66 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. [Jones] (U.S. Patent No. 4,750,112).
4. Regarding claims 23, 35, 39, 51, 55 and 66, Jones teaches a method for suspending operation of a pipelined data processor to reduce power consumption, comprising:
 - enabling a first clock signal in response to an occurrence of a first combination of respective states of one or more clock control signals [col. 6, lines 39-61];
 - advancing a sequence of instructions to a first portion of a pipeline subcircuit (Instruction Pipeline, IP) [Figs. 2, 5; col. 8, lines 53-58];
 - executing said advanced sequence of instructions with a second portion (Execution Pipeline, EP) of said pipeline subcircuit subsequent to said first pipeline subcircuit portion in response to said enabled first clock signal [Figs. 2, 5]; and
 - detecting an occurrence of a second combination of said respective states of said one or more clock control signals (signal from MicroCode Timing 12) [Fig. 3; col. 6, lines 41-45; Fig. 5; col. 8, lines 58-59] and in response thereto:

interrupting said advancing of said sequence of instructions to said first pipeline subcircuit portion (the IP is idled or suspended) [col. 8, lines 59-61], followed by executing with said second pipeline subcircuit portion a plurality of microcode (M1, M2, M3, etc.) substantially unrelated to said sequence of instructions (the microcode is not part of said sequence of instructions, therefore, the microcode is substantially unrelated to said sequence of instructions) in response to said enabled first clock signal [Fig. 5; col. 8, lines 58-59].

Jones does not explicitly teach that the first clock signal is disabled. However, one of ordinary skill in the art would have recognized that the clock signal is disabled during the idling. Even if the clock signal is not disabled during the idling, it would have been obvious to one of those skill in the art to disabling the clock signal to conserve power. Any type of indication, i.e. status signal, would also obviously be provided to indicate whether the clock signal is disabled.

5. Regarding claims 24-27, 40-43 and 56-59, Jones teaches that the instructions is retrieved from a storage device prior to advance the instructions [Fig. 2; col. 4, lines 54-55]; and the microcode is retrieved from a storage device prior to execute the microcode [col. 14, line 58 to col. 15, line 2].

6. Regarding claims 28 and 44, Jones teaches that plurality of microcode is generated [M1, M2, M3, etc.].

7. Regarding claims 30, 32, 46, 48, 61 and 63, Jones teaches that prior to said executing of said plurality of microcode, completing executing of one or more of said advanced sequence of instructions which had been advanced to said first pipeline subcircuit portion prior to said detection of an occurrence of said second combination of said respective states of said one or

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more clock control signals [Fig. 5; the instruction I5 is completely executed in the first pipeline subcircuit portion IP prior to the completion of the microcode M2].

8. Regarding claims 33, 34, 49, 50, 64 and 65, Jones teaches that the first pipeline is re-enabled when next instruction (I6) is detected [Fig. 5]. The re-enable of the first pipeline would include the changing states of one or more clock control signals and re-enabling the first clock signal if it was disabled.

9. Regarding claims 38, 54 and 69, Jones teaches that a plurality of clock signals is generated [col. 6, lines 39-61].

Allowable Subject Matter

10. Claims 29, 31, 36, 37, 45, 47, 52, 53, 60, 62, 67 and 68 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan N. Du whose telephone number is (571) 272-3673. The examiner can normally be reached on Monday-Friday: 9:30 am - 6:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H. Browne can be reached on (571) 272-3670.

Central TC telephone number is (571) 272-2100.

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The fax number for the organization is (703) 872-9306. Starting 15 July 2005, the fax number for the organization will be changed to (571) 273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

A handwritten signature in black ink, appearing to read 'Thuan N. Du', with a long horizontal flourish extending to the right.

Thuan N. Du
July 5, 2005